

I claim:

1. A brake system, comprising:
 - (a) a brake pack comprising a plurality of rotating rotor discs adapted for axial motion and a plurality of non-rotating stator discs interleaved with said rotor discs and also adapted for axial motion;
 - (b) a fluid pressure operated first piston for selective engagement with a first side of said brake pack for urging said stator and rotor discs into braking engagement;
 - (c) at least one spring on a second side of said brake pack for urging said stator discs and rotor discs into braking engagement;
 - 10 (d) a fluid pressure operated second piston, independently controlled from said first piston, located on said first side of said brake pack; and
 - (d) a pressure plate comprising an axial portion connected to said second piston and a radial portion connected to said at least one spring.
- 15 2. The apparatus of claim 1, wherein said rotors are splined to a wheel hub for rotation therewith and for axial movement therealong.
3. The apparatus of claim 1, wherein said stators are splined to said pressure plate.
- 20 4. The apparatus of claim 1, wherein said at least one spring is located at least partially within at least one pocket within said housing, said pocket comprising a stop for said pressure plate.

5. The apparatus of claim 2, wherein said first piston and said second piston are located within a non-rotating brake spider.

6. The apparatus of claim 5, wherein said wheel hub is rotatably mounted with respect to said brake spider with at least one inner wheel bearing and at least one outer wheel bearing.

7. The apparatus of claim 6, wherein said first piston is a service brake piston in fluid communication with a service brake system comprising a brake pedal, a fluid reservoir and at least one fluid valve.

8. The apparatus of claim 7, wherein said second piston is a parking brake piston in fluid communication with a parking brake system, independent of said service brake system, comprising a fluid reservoir and at least one fluid valve.

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9. The apparatus of claim 8, wherein said parking brake piston has at least a partial complementary shape to said service brake piston for selectively receiving at least a portion of said service brake piston.

20 10. The apparatus of claim 9, wherein said brake spider comprises a service brake fluid chamber for said service brake piston and a separate parking brake fluid chamber for said parking brake piston.

11. The apparatus of claim 10, wherein at least a portion of said axial portion of said pressure plate is located radially outward from at least a portion of said service brake piston.
- 5 12. The apparatus of claim 1, wherein said pressure plate is a one-piece construction.
13. The apparatus of claim 1, wherein said service brake piston selectively contacts said first side of said brake pack directly.
- 10 14. A method of braking, comprising:
providing a pressure plate comprising an axial portion and a radial portion;
connecting said axial portion of said pressure plate to a parking brake piston;
connecting said radial portion to a brake pack and also to at least one spring, said
spring biasing said pressure plate in a first axial direction;
15 providing a pressurized fluid adjacent said parking brake piston to urge said
pressure plate in a second axial direction; and
urging said radial portion of said pressure plate into said brake pack to provide a
braking force if said pressurized fluid is overcome by said at least one spring.
- 20 15. The method of claim 14, wherein one side of said radial portion of said pressure plate is in direct contact with said brake pack and the other side of said radial portion is in direct contact with said at least one spring.

16. The method of claim 14, further comprising braking said brake pack by selectively urging a service brake piston directly into said brake pack.

17. The method of claim 16, wherein said braking comprises selectively locating fluid adjacent said service brake piston so that said piston compresses said brake pack into said radial portion of said pressure plate.

18. The method of claim 14, wherein urging said pressure plate in a second axial direction causes said radial portion to compress said at least one spring and release a plurality of rotors to rotate adjacent a plurality of stators in said brake pack.

19. The method of claim 14, further comprising preventing motion of said pressure plate in said second axial direction by abutting said pressure plate adjacent at least one stop comprising a housing for said at least one spring.

20. The method of claim 14, wherein said pressurized fluid is selectively provided adjacent said parking brake piston in a parking brake fluid chamber integrally formed with a brake spider.